Let’s see the difference between Compiler and Interpreter:

| S.No. | Compiler | Interpreter |
| --- | --- | --- |
| 1. | Compiler scans the whole program in one go. | Translates program one statement at a time. |
| 2. | As it scans the code in one go, the errors (if any) are shown at the end together. | Considering it scans code one line at a time, errors are shown line by line. |
| 3. | Main advantage of compilers is it’s execution time. | Due to interpreters being slow in executing the object code, it is preferred less. |
| 4. | It converts the source code into object code. | It does not convert source code into object code instead it scans it line by line |
| 5 | It does not require source code for later execution. | It requires source code for later execution. |
| Eg. | C, C++, C# etc. | Python, Ruby, Perl, SNOBOL, MATLAB, etc. |

2-20 and 2-41

3 major data structures are involved in 2 pass assembler :-

1) OPTAB - Operator code Table - This is used to look up mnemonic operation  codes and translate them into equivalent machine language .

2) SYMTAB - Symbol Table - This is used to store addresses assigned to labels

3) LOCCTR - Location Counter - This is used for assignment of addresses.